SHORT COMMENTARY

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Teledentistry: A Novel Tool in our Arsenal to Combat COVID-19

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ABSTRACT

The prevailing havoc due to rapid spread of COVID-19 has led to an unprecedented impact on dental care delivery. With the postponement or cancellation of all routine dental work, other than emergency care, the dental economy has come to a grinding halt. Aerosols and droplets are generated in many dental procedures, so dental professionals are under an enormous risk of occupational exposure to COVID-19. With no clear forays for the restoration of normalcy, the current crisis poses unique challenges to commence and sustain dental practice. Teledentistry has emerged as a panacea to the delivery of health care, with modified approaches promoting a virtual method of consultations, avoiding direct physical contact. Teledentistry can aid in pre-screening patients for COVID symptoms, inquiring about travel history or a recent COVID-19 test result, that helps in risk stratification and deferring dental care to protect vulnerable and high-risk groups. But, it is improvident to restrict the utility of teledentistry to this time of pandemic only. Proactive integration of teledentistry in dental practice will enhance the virtual care which will change the way in which dental care services are rendered in the future.

KEYWORDS: Pandemics, Infection control, Viruses, Dental Care

INTRODUCTION

Dental practice has been handicapped in the entire globe, entangled by the tentacles spread by the COVID-19 virus, posing unique challenges to dental care delivery. The uncertainty in the future prospective of dentistry, fetched by this virus, has dismayed dental professionals, placing their profession at bay. The scope for sustainable dentistry in the new-normal situation has become doubtful and the mere act of resuming the provision of dental services to the general public creates chaos in the minds of the dental practitioners and the patients.[1]

Dental care providers rank the highest among all medical professionals in contracting the disease as the route of transmission of this virus has a significant involvement in dental practice. Aerosols and droplets are generated in many dental procedures which may lead to an easier spread of infections.[2]

In response to the spread of COVID-19 like a forest fire, lockdown model and obligatory quarantine have been imposed worldwide as an effective means to break the chain of COVID-19 transmission. The recommendations to avoid hospitals, dental clinics, medical offices unless emergency, have been set forth to minimize direct contact between the patients and the doctor.[3]

The core of the health care system resides in the security and welfare of the health personnel. Pertinent to this idea, teledentistry plays a pivotal role in linking the care provider and the patients at a distance, providing a virtual platform which reduces the risk of clinicians' exposure.[4,5] The significance of teledentistry is undoubtedly immense in terms of rendering dental care services to overcome the existing pandemic.

TELEDENTISTRY IS MORE THAN JUST A TECHNOLOGY

Teledentistry is an inseparable terrain of telemedicine devoted to dentistry, which has emerged from the coupling of digital telecommunication technology and dentistry.[6] This pioneering approach was introduced in oral health to surmount the challenges like uneven distribution and shortage of infrastructure and human resources.[7] The inception of teledentistry as a part of the blueprint for dental informatics, was drafted at a 1989 conference funded by the Westinghouse Electronics Systems Group in Baltimore.[6,8] Although teledentistry was introduced more than three decades ago, the progress has been comparatively sluggish, despite its invincible potentials.[9-11]

This innovative technology completely modifies our traditional approach, promoting a virtual method of

consultations, avoiding physical contact and direct clinical examination. Distant or isolated patients can be thoroughly screened by professionals even before reaching the hospital.3 Monitoring of post-operative cases can be done effectively after rendering dental treatments. The advantages of teledentistry includes live video, store-and-forward, remote patient monitoring and mobile health service.[12]

The medium for virtual communication can be electronic medical records, videos, digital images, smartphones or webcam-enabled computers. The most relevant equipment in this case is definitely the smartphones with their evolutionary models. Other devices such as tablets and laptops are additionally multifaceted devices which have radically changed the health sector in terms of accessibility and provision of health care facilities. Most of the health centers have promoted their service through electronic documentation for continuous optimal care.[5]

TELEDENTISTRY IN THE AGE OF COVID-19

Health systems globally are now recoursing to teledentistry as it has assisted the "Stay home" and "social distancing" polices enabling dental care delivery, keeping patients in their homes. If we are thinking of limiting the utilization of teledentistry to this time of pandemic only, this will just be an indication of our improvident action. The scope of teledentistry includes improved access, early intervention, and health education to enhance the quality, efficiency, and effectiveness of dental health matrices.[13]

In times of this crisis, a large number of outpatients visiting to various dental hospitals and clinics can turn these dental settings to an overwhelming, chaotic place which poses a unique challenge to the maintenance of quality of care. With the use of teledentistry, we can efficiently manage a sizeable portion of the potential patients which minimizes the risk of exposure of patients, clinicians, and the community. Teledentistry is playing a key role in reducing the risk of Covid-19 dissemination.

The idea of "forward triage" was conceptualized for tackling various types of crisis situations in times of pandemics. Forward triage aims at reducing the workload of the care givers by curtailing unnecessary patient visits to dental settings and sorting the patients before they arrive to hospital.[14-16]

The tide in the area of virtual medicine has been heightened by the endeavors generated by teledentistry. Teledentistry is definitely here to stay and the future holds an array of opportunities to unravel its actual scope. The area where teledentistry has carved a niche is evidently the conducive maneuver of the health workers, who have been quarantined at home after exposure to COVID-19. In the aforementioned state of affair, the distant teleconsultations prove to be a convenient tool to these health workers, by being actively engaged in the field of teledentistry. In cases of quarantined patient, the perception of satisfaction is fulfilled, through teledentistry, by the apprehension of the fact that they are being constantly monitored and attended. Consequently, the patient compliance is enhanced and a stronger doctor–patient bond is established, the latter playing a crucial role in the overall success of dental care delivery.

RISK STRATIFICATION AND SCHEDULING PATIENTS

The greatest threat posed by this pandemic is the lack of definitive prevention, treatment, and/or vaccine for COVID-19. Our practice has to be redefined with new screening methods. Detailed travel and exposure histories, COVID-19 symptoms, recent COVID-19 test results have to be assessed before intervention. Prescreening patients, through teledentistry, can help the health workers to segregate the patients as COVID, COVID suspicious or healthy patients and decide whether to defer the treatment or refer him/her to COVID-19 dedicated center.

DEFER DENTAL CARE: PROTECT VULNERABLE AND HIGH-RISK GROUPS

It is obvious from our recent experiences with the rapidly emerging COVID-19 that the older adults (over age 60) are the most vulnerable to develop serious illness and complications of COVID-19 leading to loss of their life. In addition, many of the geriatric patients also present with comorbid diseases like hypertension, cardiac disease, diabetes, or are immunocompromised or taking multiple drugs which increase likelihood of an adverse COVID outcome. So, there is an obligation to special consideration with regards to the care and safety of the elderly patients.[3] This has direct implications for deferring the appointments for older and fragile patients at this hour of active contagion. Teledentistry can play an instrumental role in evaluating ongoing dental care for older individuals

and critically appraise risks versus benefits of the current dental procedures. We can employ teledentistry to reassure older adults for postponing cosmetic dental procedure or other elective treatment and thus limit their risk of contracting the virus.

TRENDS, CHALLENGES AND OPPORTUNITIES

The greatest hurdle in teledentistry is undoubtedly "the cost factor". Teledentistry requires the obligatory collage of sources, funding and precise guidelines. The cost of the infrastructure for the telecommunication refrains the developing countries from consuming this versatile technology, although its implications are stipulated. On the other hand, the conservatism of decision makers in developing countries may play a dismissive role in its execution.[14,15]

But, what about the validity and accuracy of this system? Needless to say, examination in-person and tele-diagnosis are incomparable strategies. The limitations in physical examination with proper instruments is, yet another barrier to its wider use.

Ethical issues imposed by this technology incapacitates the dentists from its maximum implementation. The exchange of personal details of the patient during teledentistry demands the commitment to confidentiality and security from the dental fraternity.[12]

Of course, technology cannot replace humans and it would be a frank fallacy to imagine that teledentistry can replace dental care providers. Teledentistry can only support in reducing the tiring workload of the frontline warriors during this COVID-19 outbreak by diverting them to provide emergency care. However, this mere support proves to be of utmost importance in times of the current pandemic.[4,14] The power of teledentistry cannot be underestimated by its disadvantages. The cogency of this argument should be evaluated based on the need of the hour to emerge from the current crisis. Rules for monitoring suspicious activities should be developed and the conditions for reimbursement, interstate licensing and data confidentiality issues should be revised.

FUTURE PERSPECTIVES

Proactive use of teledentistry permits forward thinking to reach and assure patients in need of dental care in a new way as current crisis evolves. The gradual advances in dental scientific community has been possible because of the visionary approach to envisage such adversities as opportunities. The current situation has aided in gaining momentum in novel fields in dentistry that are dedicated to optimal treatment modalities, embracing issues of accessibility, availability and affordability. The booming dental practice, which has incorporated innovations of robotics, sensors, nanotechnology, virtual reality, artificial intelligence, genomics and proteomics, has successfully metamorphosed into the direction of precision dentistry. Teledentistry is bound to make a gigantic leap, considering its aptitude and impact, transcending spatial and temporal affairs, establishing itself as a prime means of connectivity.

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Source of support: Nil, **Conflict of interest:** None declared

Cite this article as:
Bhochhibhoya A, Shrestha R. Teledentistry: A Novel Tool in our Arsenal to Combat COVID-19. Int Healthc Res J. 2020;4(4):77-80. https://doi.org/10.26440/IHRJ/0404.07353

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